PENTRON MODELS
AR-62, AR-62SPENTRON MODELS
AR-62, AR-62S

GENERAL INFORMATION

Models AR-62 and AR-62S will record and play dual-track monaural recordings at either 3 3/4- or 7 1/2-ips. Model AR-62S will play 2-track or 4-track stereophonic recordings.

Push buttons control each mode of operation. A record-level indicator tube is used for correct volume level when recording.

These recorders operate from a 105-120 Volt, 60 Cycle source only.

Manufactured By:

Pentron Electronics Corp.
777 S. Tripp Avenue
Chicago 24, Illinois

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana



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FUNCTIONS OF CONTROLS, INDICATORS, AND SWITCHES

Speed Control

Make sure power is on. With tape threaded, speed control switch can be moved to the left for 7 1/2" per second or, to the right for 3 3/4" per second in any push-button position. Make sure the switch "CLICKS" to insure proper engagement. The action that takes place during a speed change is as follows:

Capstan drive belt (39) rides between the forked end of speed change fork (50). When the Speed Change button is moved to the left, the forked end of speed change fork (50) pivots upward. This lifts capstan drive belt (39) high enough to be picked up by an "ear" on motor pulley (38). The "ear", in turn, places capstan drive belt (39) in the middle pulley of motor assembly (38), resulting in a tape speed of 7 1/2 ips.

When the Speed Change button is moved to the right, the forked end of speed change fork (50) pivots downward. This lowers capstan drive belt (39) enough to contact one of the "ears" on motor pulley (38). This "ear", in turn, places capstan drive belt (39) in the bottom pulley of motor pulley assembly (38), resulting in a tape speed of 3 3/4 ips.

When the Speed Change button is moved to the left for the 7 1/2-ips tape speed, speed change fork (50) contacts and closes equalizer switch (54) in order to obtain the correct equalization for the 7 1/2-ips tape speed.

Push Button

Mechanical and electrical functions relating to the Play and Record operations are controlled by the push buttons. In addition to starting or stopping the tape, the Play, Record, and Stop push buttons switch the proper electrical circuits in or out when the buttons are depressed. The mechanical functions for wind and rewind are controlled by the Wind and Rewind push buttons. The following mechanical action takes place as each push button is depressed.

Note: This sequence of push-button operation originates with the Stop button depressed.

Play Button

1. Depressing the Play button releases the Stop button. When the Stop button is released, tension on brake spring (11) is relieved, allowing brake release spring (10) to pull brake rollers (3) away from reel rests (12 and 13). Tension on cutoff switch link (80) is also relieved, allowing the arm on cutoff switch bracket (74) to rest against the tape. This action allows cutoff switch (73) to break contact if the tape spills or breaks.

2. Pressure roller spring (61) pulls head mounting bracket and guide assembly (103) forward, allowing the heads to contact the pressure pads and pressure roller (104) to contact the capstan.

3. Tension applied to take-up spring (94) pivots take-up bracket (97). Take-up bracket (97), in turn, moves take-up clutch assembly (66) against right-hand reel rest (13) to provide tape take-up.

Record Button, Pause Control Lever

1. Depressing the Record button (the Pause control lever must be held in the forward position to allow the Record button to be depressed) releases the Stop button. When the Stop button is released, tension on brake spring (11) is relieved, allowing brake release spring (10) to pull brake rollers (3) away from reel rests (12 and 13). Tension on cutoff switch link (80) is also relieved, allowing the arm on cutoff switch bracket (74) to rest against the tape. This action allows cutoff switch (73) to break contact if the tape spills or breaks.

2. Tension applied to record spring (82) pivots switch actuator arm (101). Switch actuator arm (101), in turn, switches the amplifier Play-Record switch from Play to Record. In all other push-button positions, the amplifier Play-Record switch remains in the Play position.

Wind Button

1. Depressing the Wind button releases the Stop button. When the Stop button is released, tension on brake spring (11) is relieved, allowing brake release spring (10) to pull brake rollers (3) away from reel rests (12 and 13). Tension on cutoff switch link (80) is also relieved allowing the arm on cutoff switch bracket (74) to rest against the tape. This allows cutoff switch (73) to break contact if the tape spills or breaks.

2. Tension applied to fast forward spring (34) pivots rocker arm (32). Rocker arm (32), in turn, pivots traverse link (27) and traverse pulley (25) toward right-hand reel rest (13). Fast traverse belt (29), which drives traverse pulley (25) from the motor pulley (38), contacts right-hand reel rest (13) to drive the tape at a rapid forward speed.

Rewind Button

1. Depressing the Rewind button releases the Stop button. When the Stop button is released tension on brake spring (11) is relieved, allowing brake release spring (10) to pull brake rollers (3) away from reel rests (12 and 13). Tension on cutoff switch link (80) is also relieved, allowing the arm on cutoff switch bracket (74) to rest against the tape. This allows cutoff switch (73) to break contact if the tape spills or breaks.

2. Tension applied to rewind spring (33) pivots rocker arm (32). Rocker arm (32), in turn, pivots traverse link (27) and traverse pulley (25) toward left-hand reel rest (12). Fast traverse belt (29) contacts rewind idler wheel (17). Rewind idler wheel (17), in turn, drives left-hand reel rest (12) at a rapid rewind speed.

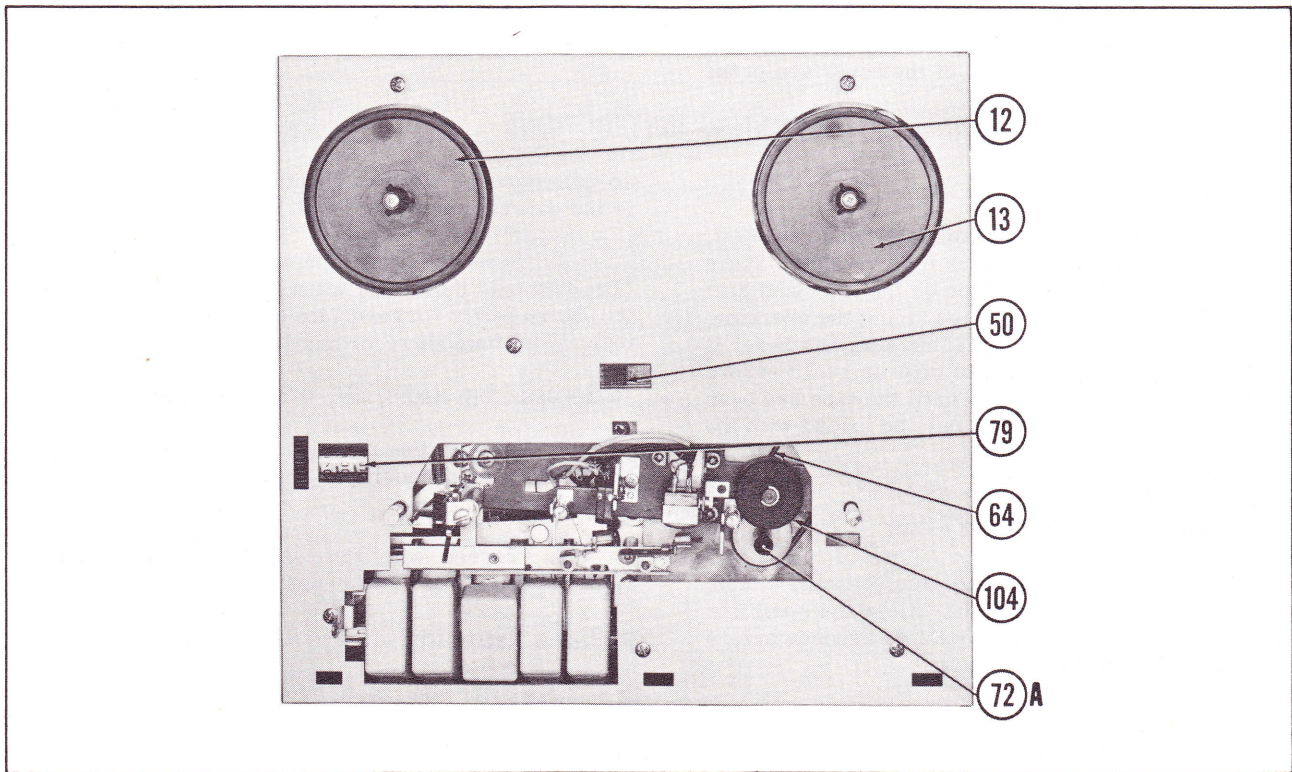


Figure 1. Top View Of Mechanism With Top Covers Removed.

Volume Control

Turning the Volume control clockwise increases the volume level for both record and playback; turning it counterclockwise decreases the volume level.

Tone Control On-Off Switch

The Tone control varies the relative strength of the bass and treble frequencies during playback and monitoring while recording; it has no effect on the signal being recorded on the tape when recording. The first few degrees of rotation operate the ON-OFF switch, which controls the power to both the motor and amplifier.

Automatic Index Counter

Automatic index counter (79) provides a means for locating recorded material anywhere on the tape. Set the counter to zero at the beginning of a reel by rotating the Reset knob. Counter belt (14), which is connected to left-hand reel rest (12), drives the counter.

Cutoff Switch

Cutoff switch (73) is located to the left of the head assembly. The tape falls between tape guide bracket (83) and the arm on cutoff switch bracket (74). Thus, when the end of a reel of tape is reached, or if the tape should spill or break, the arm on cutoff switch bracket (74) moves into tape guide bracket (83). This action opens cutoff switch (73), and shuts off the drive mechanism.

DISASSEMBLY INSTRUCTIONS

To Remove Unit from Case

1. Remove the six screws from bottom of case.
2. Remove two screws from rear of case.
3. Remove the screw from right side of case.
4. Remove the screw from left side of case.
5. Remove the screw from left side of control panel.
6. Remove the screw from right-side of control panel.

7. Set case on its side and carefully work mechanism halfway out of case.

8. Unplug one lead from each speaker. Remove mechanism from case.

To Remove Head Cover, Top Cover, and Top Plate

To gain access to the head assembly, place both hands on the plastic head cover. Gently push the head cover toward the rear of the unit, at the same time, lifting slightly. To replace the head cover, insert the plastic key on the cover in the cutout provided on the top panel and turn downward until the head cover seats into the original position.

To remove the top (front) cover, first pry the knob off the Pause lever. Place a finger at the back corners (at the tape guides) of the cover and press

forward toward the front. Lift the cover up and off. To replace the top cover, reverse the procedure.

OPERATING INSTRUCTIONS

Tape Loading and Threading

Place an empty reel on the right-hand reel rest, making sure the three fins enter the reel slots. Place a full reel of standard "A" tape on the left-hand reel rest, with the shiny side of the tape facing the operator. Stretch tape in line with threading slot, and lower it into place. Attach end of tape to take-up reel and turn the reel by hand several times until the tape has been secured to the reel. Tape can only be loaded with the Stop button depressed.

Turning on the Amplifier and Motor

To supply power to the amplifier and motor, turn the Tone control to the right. Allow the amplifier to warm up for approximately thirty seconds before proceeding to record or playback.

Selecting Speeds

With power on and tape threaded, the Speed Control button can be moved to the left for 7 1/2-ips tape speed or to the right for 3 3/4-ips tape speed while the recorder is in any push-button position.

To Record from a Microphone

1. Insert the microphone plug into the Mic jack.
2. Engage Pause control by pulling the lever forward toward the front. Depress the Record button. (The Record button cannot be depressed unless the Pause lever is held in the forward position). The record level can now be set, without recording on the tape, while the Pause lever is held in the forward position. Adjust the Volume control so that the loudest

sounds cause the Electron Beam to barely close. This is the correct recording level.

3. To record on the tape, release the pause lever. (To stop tape movement when recording, merely pull the Pause Lever forward. Release to resume recording). When finished recording depress the Stop button.

To Record from Radio, TV, or Phonograph

1. Connect the output signal from the radio, tuner, TV, or phonograph, to the Radio input jack on the recorder.

2. Proceed with the recording as described in Steps 2 and 3 of "To Record From A Microphone."

To Play a Recording

1. Rewind the tape by depressing the Rewind button.
2. When the tape is rewound to the desired point, depress the Stop button.
3. Depress the Play button and adjust the Volume and Tone controls for the desired listening level.

To Play Stereo Tapes

1. Use the shielded cable provided. Feed the the output from the Stereo Amp. jack on the rear deck, to an external amplifier-speaker system.
2. Depress the Play button.
3. Adjust the recorder and external amplifier Volume and Tone controls for the desired listening level.

ADJUSTMENTS

Take-Up Adjustment

The rpm of the take-up reel changes considerably as the diameter of the reel of tape increases. Therefore, a slipping clutch is used to drive the take-up reel at the constantly varying speeds required.

This clutch consists of take-up reel pulley (63), which is driven at a constant speed by the take-up belt (64). Next to pulley (63) is fiber clutch (65). Fiber clutch plate (65) slips on clutch felt (68), which is securely cemented to take-up clutch pulley (66) and tire (67) drive right-hand reel rest (13) at the varying speeds required as the tape builds up on the take-up reel.

The take-up torque in the Play position should be approximately three to four ounces, measured one inch from the center of the take-up reel. The clutch is adjusted by turning Nylock screw (62) until the correct pressure is obtained. If the correct pressure cannot be obtained, disassemble the clutch assembly and check for a worn, dirty, or oily clutch felt (68). If so, replace clutch felt (68) and thoroughly clean all associated parts.

Cutoff Switch Adjustment

Cutoff switch (73) can be adjusted with the recorder in any position except Stop. With the tape threaded between tape guide bracket (83) and the arm on cutoff switch bracket (74), the drive mechanism should remain on. When the tape is removed, the drive mechanism should shut itself off.

To adjust cutoff switch (73), loosen the two switch mounting screws, and position cutoff switch (73) until the correct action is obtained.

Play-Record Head Alignment

The play-record head must be lined up perfectly with the tape. If it is not, low output, loss of high frequencies, or track overlap may occur. To adjust the play-record head:

1. Head Height - The top of the play-record pole piece must be even with the top edge of the tape. To adjust the head height, loosen the two hex nuts on the

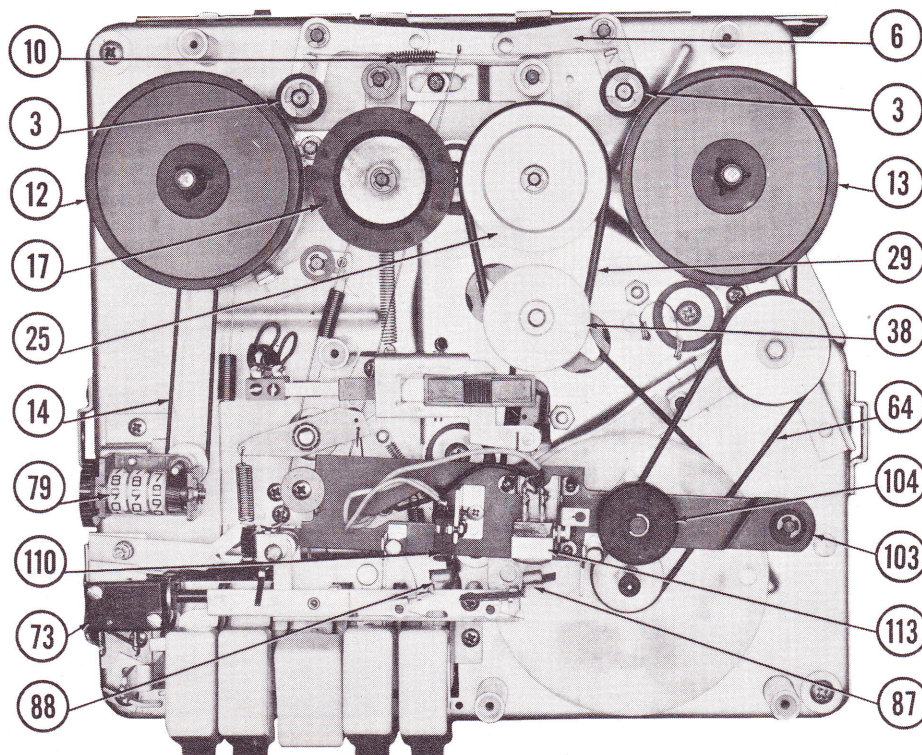


Figure 2. Top View Of Mechanism With Top Plate Removed.

side of the play-record head. After the proper head height has been obtained, tighten the two hex nuts.

2. Azimuth Alignment - To make this adjustment, obtain a standard alignment tape having a signal of at least 5,000 cps. Connect an AC voltmeter (0-5 volt range) to the Amp. jack. While playing back the alignment tape, pivot the play-record head by turning the three adjustment screws, until the maximum meter reading is obtained.

Erase Head Alignment

The erase head should be adjusted so that the pole piece is even with the top edge of the tape. To adjust, loosen the two hex nuts on the side of the erase head. After the proper head height is obtained, tighten the two hex nuts.

PARTS REPLACEMENT

To Replace The Flywheel and Capstan Assembly

1. Remove the two screws that mount pressure pad bracket (85). Remove pressure pad bracket (85).
2. Remove the screw from the left end of the head mounting bracket and guide assembly.
3. Remove "E" ring (57) from the right end of the head mounting bracket and guide assembly.
4. While leaving springs (60) and (61) attached, lift the head mounting bracket and guide assembly from the mounting stud.
5. Remove take-up belt (64).
6. Remove capstan drive belt (39).
7. Remove "E" ring (72F), thrust bearing bolster (72E), capstan thrust bearing (72D), ball bearing (98),

"E" ring (72C) and nylon washer (72G) from bottom of capstan shaft.

8. Lift the flywheel and capstan assembly straight up and off the mechanism plate.

9. To reassemble, reverse the foregoing procedure.

To Replace The Capstan Drive Belt

Capstan drive belt (39) can be removed and replaced without disassembling any of the drive mechanism except take-up belt (64), and fast traverse belt (29).

1. Remove take-up belt (64) from the flywheel by lifting the belt over the top of the capstan and slipping it under the head mounting bracket and guide assembly.

2. Remove fast traverse belt (29).

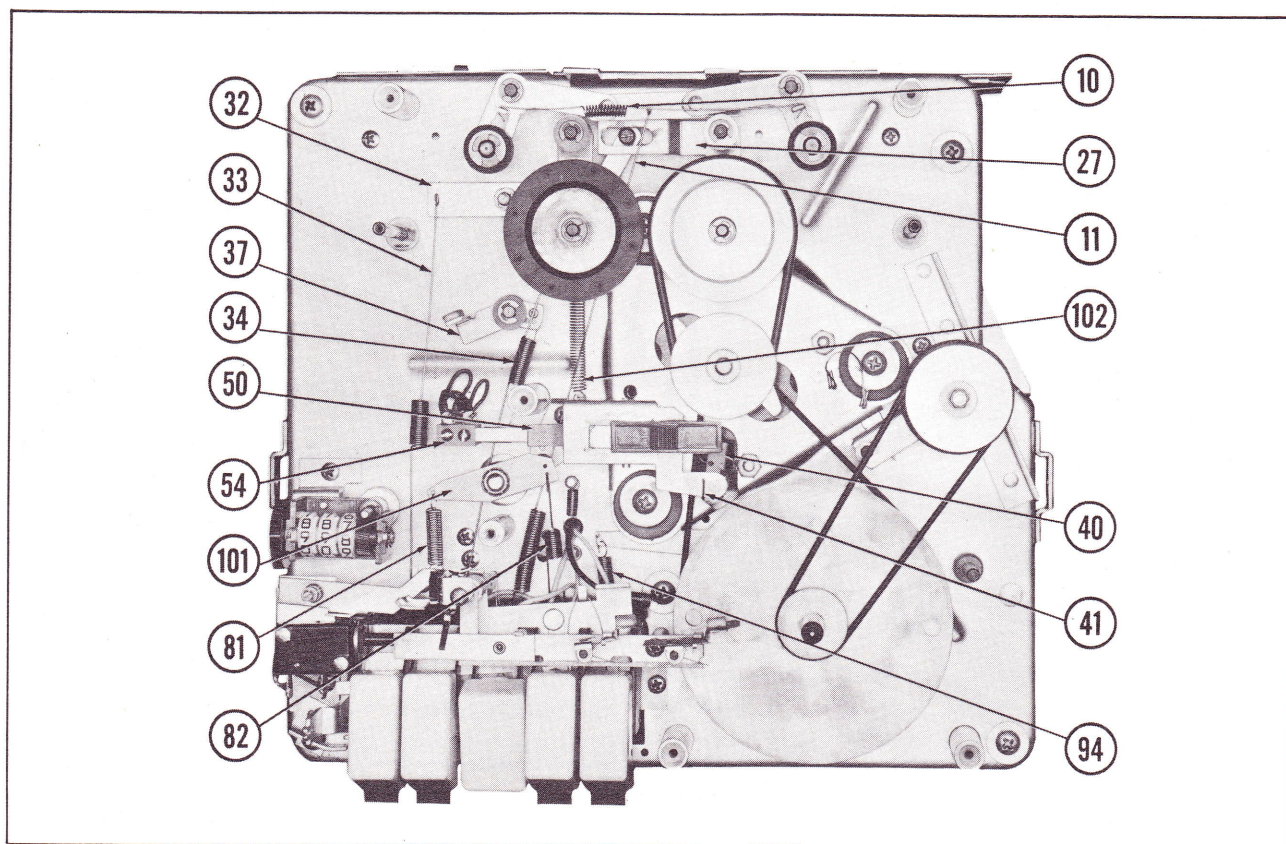


Figure 3. Top View Of Mechanism With Reel Rests And Head Mounting Bracket And Guide Assembly Removed.

3. Remove capstan drive belt (39) from the fly-wheel, by lifting the belt over the top of the capstan and slipping it under the head mounting bracket and guide assembly.

Work the belt from between the forked end of speed change fork (50) and speed change detent (40). Lift the belt off the motor pulley. To replace the belt, reverse the foregoing procedure.

LUBRICATION

All moving parts in this recorder were permanently lubricated at the factory. If any parts are replaced, their bearing surfaces must be coated with a lightweight grease. Do not lubricate unless any parts are replaced.

The basic rule is - do not overlubricate. Grease

must be kept off all rubber idlers and belts, the rim of the flywheel, and any parts that might transfer grease to them. If any grease falls on these parts, wipe them with a soft cloth, and clean the belts and idlers with alcohol. Always wipe excess lubricant from lubricated parts.

CLEANING

The play-record and erase heads, capstan (72A), and pressure roller (104) may accumulate tape coating oxide, which is worn off the tape as it passes these

parts. These parts should be cleaned occasionally with a soft cloth and alcohol.

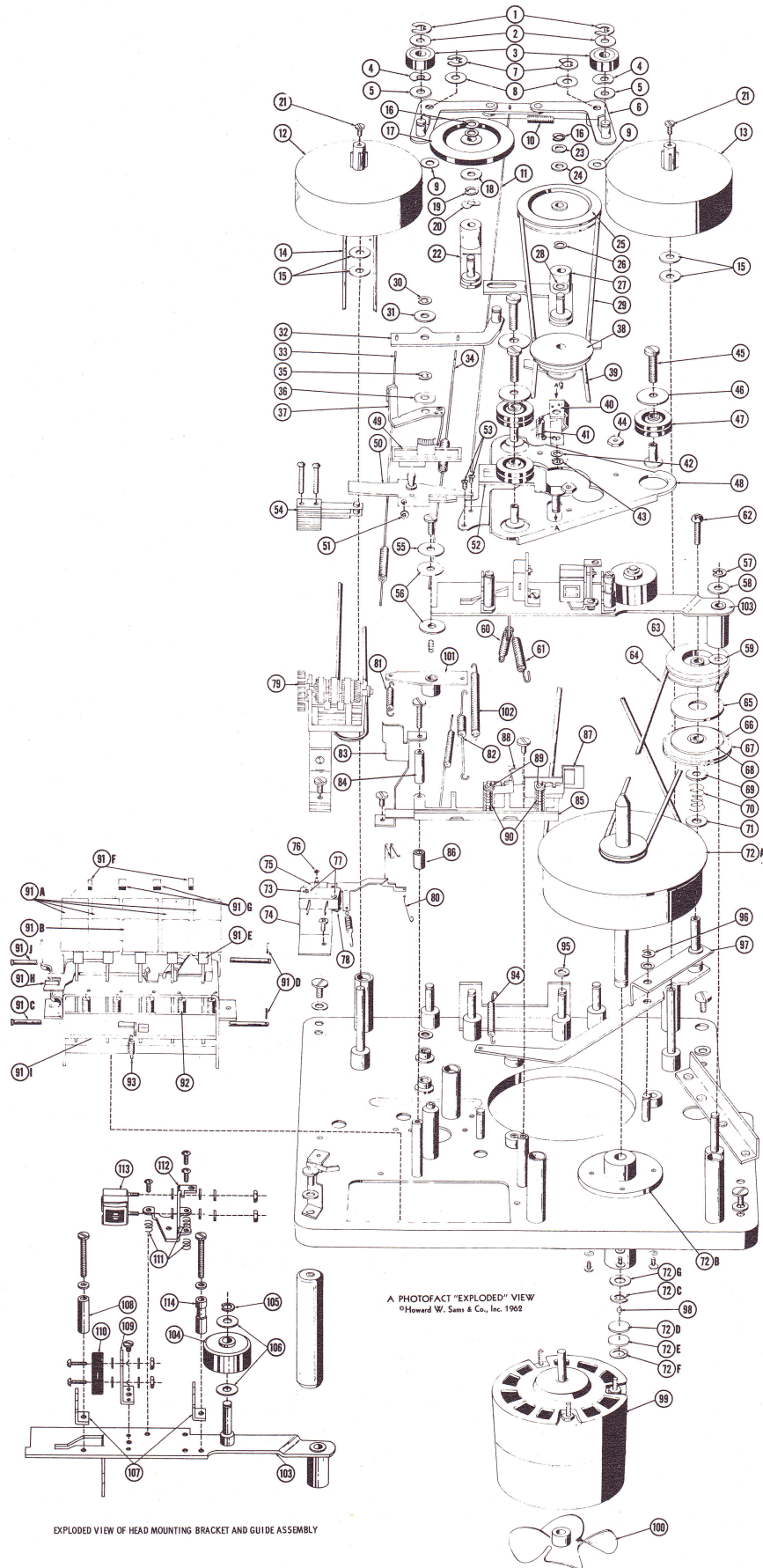


Figure 4. Exploded View Of Tape Transport Mechanism.

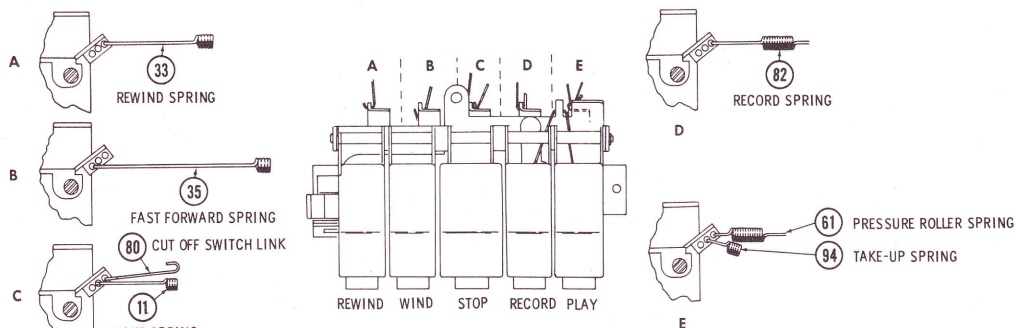


Figure 5. Push Button Spring Connections.

TROUBLE CHART

Symptom	Cause	Remedy
Motor and amplifier do not operate when switch is on.	<ol style="list-style-type: none"> 1. Damaged power cord. 2. Defective On-Off Switch. 	<ol style="list-style-type: none"> 1. Repair or replace power cord. 2. Replace switch.
No sound; or sound is fuzzy, faint, or distorted.	<ol style="list-style-type: none"> 1. Over or under recorded tape. 2. Amplifier trouble. 3. Dirty play-record head. 	<ol style="list-style-type: none"> 1. See "Operating Instructions". 2. Check voltages and resistances as per schematic. 3. Clean head with alcohol and a soft cloth.
Incomplete erase.	<ol style="list-style-type: none"> 1. Dirty erase head. 2. Defective coil in erase head. 3. Misaligned erase head. 	<ol style="list-style-type: none"> 1. Clean head with alcohol and a soft cloth. 2. Check continuity. Replace erase head, if necessary. 3. See "Erase Head Alignment."
Does not record.	<ol style="list-style-type: none"> 1. Faulty microphone or cord. 2. Faulty input jack. 3. Faulty tube (s). 4. Dirty play-record head. 5. Record spring (82) broken or disconnected. 6. Open in play-record head. 	<ol style="list-style-type: none"> 1. Replace microphone or cord. 2. Repair or replace input jack. 3. Check tubes and replace defective ones. 4. Clean head with alcohol and soft cloth. 5. Reconnect or replace record spring (82). 6. Check continuity. Replace play-record head, if necessary.
No playback; amplifier noise only.	<ol style="list-style-type: none"> 1. Open in play-record head. 2. Faulty play-record switch M1. 	<ol style="list-style-type: none"> 1. Check continuity. Replace play-record head if necessary. 2. Check play-head switch M1. Replace, if necessary.

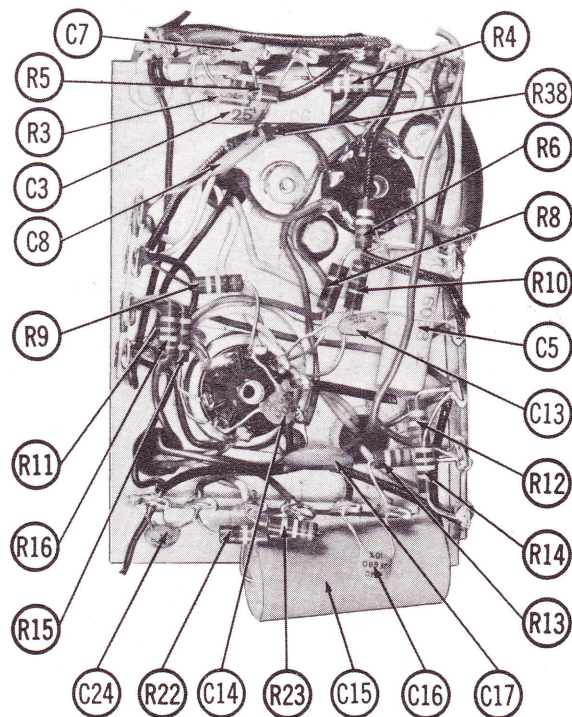
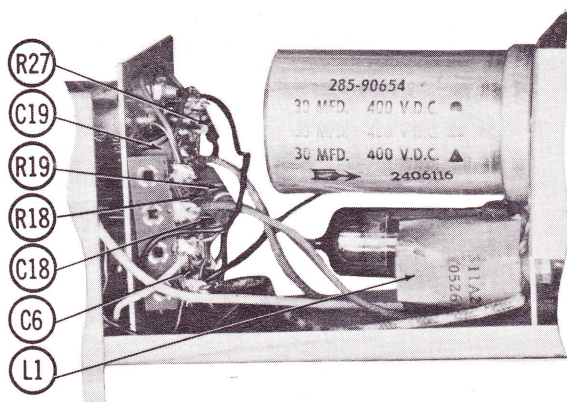
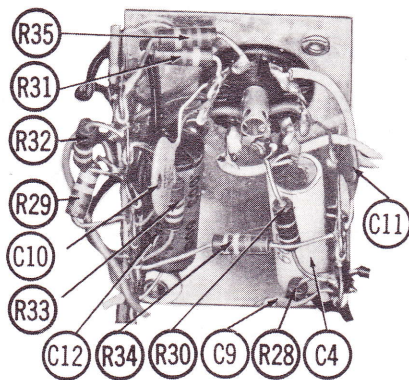
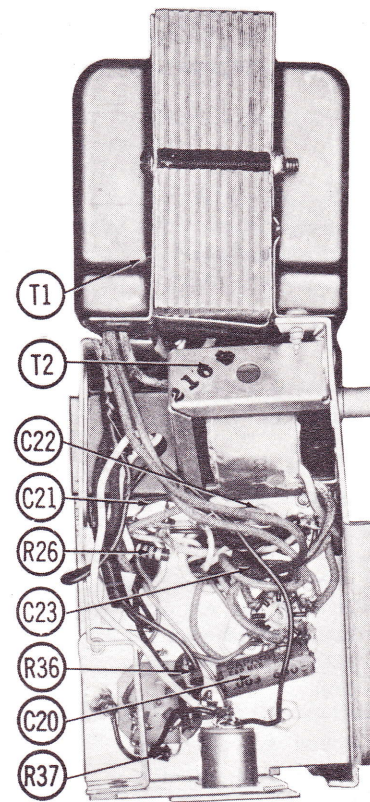
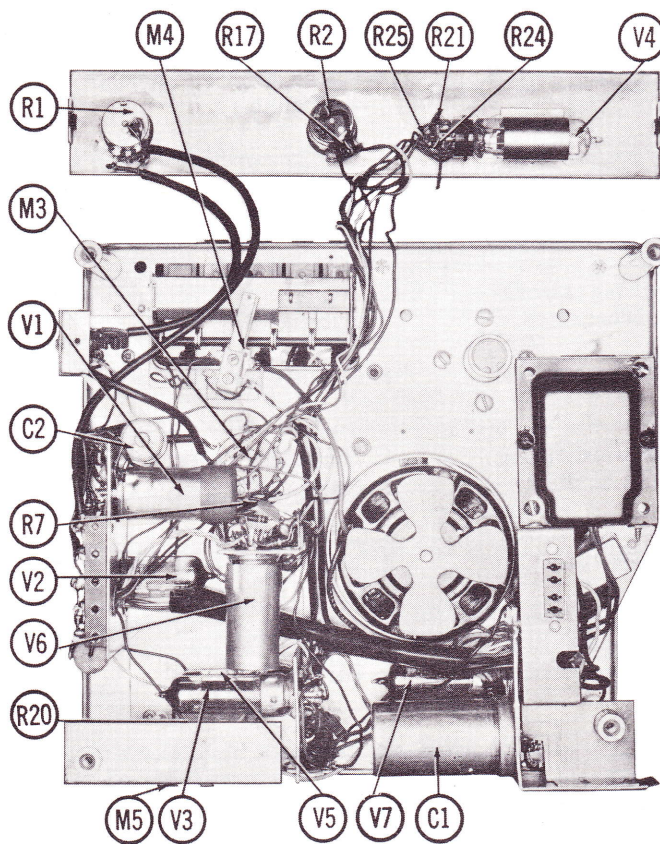
TROUBLE CHART (Cont.)

Symptom	Cause	Remedy
Poor high-frequency response.	<ol style="list-style-type: none"> 1. Dirty play-record head. 2. Worn pressure pads. 3. Play-record head not aligned properly. 	<ol style="list-style-type: none"> 1. Clean head with alcohol and a soft cloth. 2. Replace pressure pads. 3. See "Play-Record Head Alignment".
No rewind.	<ol style="list-style-type: none"> 1. Rewind spring (33) broken or disconnected. 2. Fast traverse belt (29) broken. 	<ol style="list-style-type: none"> 1. Replace or reconnect rewind spring (33). 2. Replace fast traverse belt (29).
No wind (fast forward).	<ol style="list-style-type: none"> 1. Fast forward spring (34) broken or disconnected. 2. Fast traverse belt (29) broken. 	<ol style="list-style-type: none"> 1. Replace or reconnect fast forward spring (34). 2. Replace fast traverse belt (29).
Brakes do not operate when unit is placed in Stop position.	<ol style="list-style-type: none"> 1. Brake spring (11) broken or disconnected. 	<ol style="list-style-type: none"> 1. Replace or reconnect brake spring (11).
Speed selector not functioning properly.	<ol style="list-style-type: none"> 1. Detent spring (41) broken or disconnected. 	<ol style="list-style-type: none"> 1. Replace or reconnect detent spring (41).
No tape take-up when Play button is depressed.	<ol style="list-style-type: none"> 1. Take-up spring (94) broken or disconnected. 2. Take-up belt (64) broken. 3. Take-up clutch improperly adjusted. 	<ol style="list-style-type: none"> 1. Replace or reconnect take-up spring (94). 2. Replace take-up belt (64). 3. See "Take-up Adjustment".
No tape drive when Play button is depressed.	<ol style="list-style-type: none"> 1. Capstan drive belt (39) broken. 2. Pressure roller spring (61) broken or disconnected. 	<ol style="list-style-type: none"> 1. Replace capstan drive belt (39). 2. Replace or reconnect pressure roller spring (61).
Motor doesn't turn.	<ol style="list-style-type: none"> 1. Capstan drive belt (39) jammed on motor pulley ass'y. (38). 	<ol style="list-style-type: none"> 1. Remove top (front) cover (see "To Remove Top (front) Cover" Page 5) and turn exposed flywheel to free capstan drive belt (39). If drive belt (39) cannot be freed in this manner, remove top plate (See "To Remove Top Plate" Page 5) and properly reposition drive belt (39) on motor pulley (38).
Hum in output.	<ol style="list-style-type: none"> 1. Incorrectly positioned pressure pad shield (87). 	<ol style="list-style-type: none"> 1. Connect VTVM or oscilloscope to output of recorder and bend pressure pad shield (87) with long nose pliers for minimum hum as indicated by VTVM or oscilloscope.

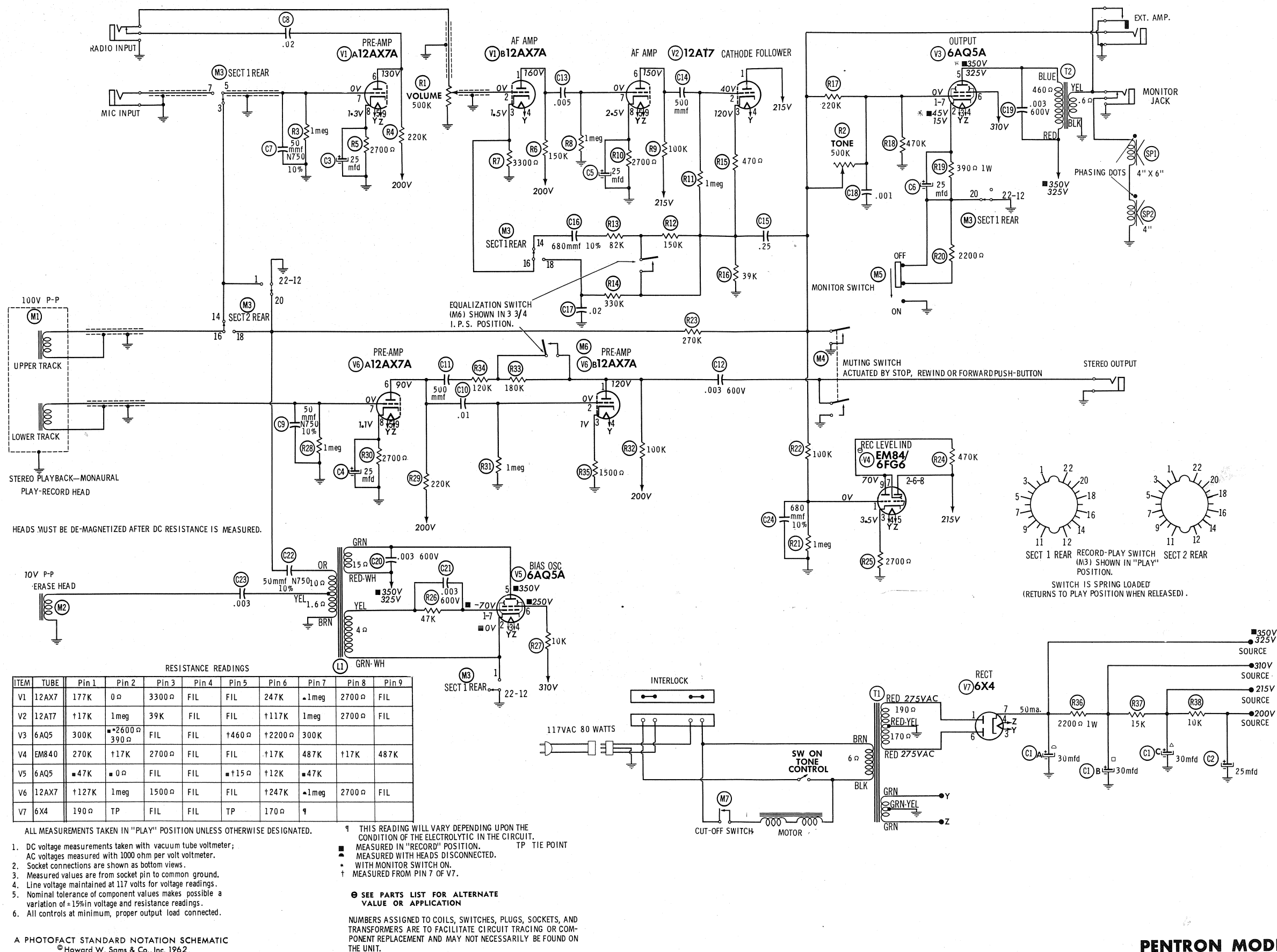
CAUTION: Jamming of the capstan drive belt (39) can only be caused by changing speeds before turning on the motor.

PENTRON MODELS
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FOLDER 9



ELECTRICAL CHASSIS PHOTOS



A PHOTOFACT STANDARD NOTATION SCHEMATIC
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MECHANICAL PARTS LIST

Ref. No.	Part No.	Description
1	619A42	"E" Ring, 1/4" Dia.
2	616A24	Washer, Clock Steel
3	964A388	Brake Roller
4	619A62	Bowed Washer
5	616A3169	Washer, Clock Steel
6	964B165	Right & Left Brake Ass'y.
7	619A28	"E" Ring, 3/16" Dia.
8	616A24	Washer, Clock Steel
9	831A5	Washer, Nylon
10	712A89	Brake Release Spring
11	712A91	Brake Spring
12	824C867	Reel Rest Ass'y. (Rewind)
13	824C999	Reel Rest Ass'y. (Wind)
14	854A908	Counter Belt
15	831A7	Washer, Nylon
16	619A28	"E" Ring, 3/16" Dia.
17*	964A130*	Idler Wheel, Rewind *
18	831A5	Washer, Nylon
19	619A28	"E" Ring, 3/16" Dia.
20	619A62	Bowed Washer
21	611-40354	Screw, 4-40 x 3/16 Phillips BHMS
22	964A415	Idler Link Ass'y.
23	616A24	Washer, Clock Steel
24	616A24	Washer, Clock Steel
25	964A850	Traverse Pulley Ass'y.
26	619A28	"E" Ring, 3/16" Dia.
27	964B851	Traverse Link Ass'y.
28	831A5	Washer, Nylon
29	854A53	Fast-Traverse Belt
30		"C" Ring,
31	831A7	Washer, Nylon
32	964A416	Rocker Arm Ass'y.
33	712A90	Spring, Rewind
34	712A88	Spring, Fast Forward
35		"C" Ring,
36	831A7	Washer, Nylon
37	964A427	Drag Arm Ass'y.
38	964A419	Motor Pulley Ass'y.
39	854A56	Capstan Drive Belt
40	711A749	Speed Change Detent
41	712A856	Detent Spring
42	616A24	Washer, Cl. Spl. .191 x .010
43		"C" Ring
44	614-8114	Hex Nut, #8-32 x 11/32
45	611-11254	Screw, #10-32 x 3/4, Phillips BHMS
46	616-1244	Washer, # 10 Flat
47	855A16	Shock Mount, # 2
48	711B855	Motor Plate
49	824B21	Speed Change Button
50	964A418	Speed Change Fork Ass'y.
51	619A144	"C" Ring, 1/8" Dia.
52	714A568	Pin, Speed Change
53		Screw
54	53422	Equalizer Switch (Includes Mtg. Screws)
55	616A38	Washer, Clock Steel
56	831A9	Washer, Nylon
57	619A28	"E" Ring, 3/16" Dia.
58	696-6160	Washer, Fiber
59	616A3169	Washer, Clock Steel
60	712A84	Spring, Pressure Roller Release
61	712A86	Spring, Pressure Roller
62	613-6054	Screw, "Nylock", #6-32 x 3/8
63	964A390	Take-Up Pulley Ass'y.
64	854A54	Belt, Take-Up
65	811A45	Clutch Plate
66	964A391	Take-Up Clutch Ass'y.
67	854A52	Tire, Take-Up Clutch
68	871A67	Clutch Felt
69	831A7	Washer, Nylon
70	712A93	Spring, Take-Up Clutch
71	831A7	Washer, Nylon
	964B832	Capstan Journal Complete Ass'y.

Ref. No.	Part No.	Description
72A	964B157	Flvwheel Capstan Ass'y.
72B	964B831	Journal, bearing Ass'y.
72C	619A77	Retaining Ring, 5/16" External
72D	831A825	Capstan Thrust Bearing
72E	711A821	Thrust Bearing Bolster
72F	619A76	Retaining Ring, 5/8" Internal
72G		Nylon Washer
73	523A45	Cutoff Switch
74	964A893	Switch Bracket Ass'y.
75	964A985	Switch Actuator & Bushing Ass'y.
76	619A144	"C" Ring, 1/8" Dia.
77	611-41054	Screw, #4-40 x 5/8 , BHMS
78	761A132	Nut Plate
79	964A886	Counter & Bracket Ass'y.
80	712A986	Cutoff Switch Link
81	712A125	Spring, Switch Actuator Arm
82	712A106	Spring, Record
83	731A70	Tape Guide Bracket
84	734A32-1	Tape Guide Post
85	964A1007	Pressure Pad Bracket Ass'y.
86	764A949	Spacer
87	964A25	Pressure Plate & Pad Ass'y. (With Shield)
	871A65	Pressure Pad
88	964A426	Pressure Plate & Pad Ass'y.
89	619A144	"C" Ring, 1/8" Dia.
90	712A85	Spring, Pressure Pad
	964B922	Push Button Bracket Ass'y.
91A	964A937	Lever Arm & Push Button Ass'y. (Wind, Rewind, Play, Record)
91B	964A936	Lever Arm & Push Button Ass'y. (Stop)
91C	714A584	Lever Pivot (Spring Actuator)
91D	619A144	"C" Ring, 1/8" Dia.
91E	884A929	Plunger Buffer (5 Required)
91F	764A983	Spacer Washer (Lever Arm)
91G	764A968	Spacer (Lever Arm)
91H	964B1005	Lever Interlock Ass'y.
91I	711A751	Lever Arm, Spring Actuating (4 Required)
91J	714A928	Key, Lever Pivot
92	712A94	Spring, Push Button Ass'y. (6 Required)
93	712A40	Spring, Lever Locking
94	712A87	Take-Up Spring
95	831A5	Washer, Nylon
96	619A28	"E" Ring, 3/16" Dia.
97	964A436	Take-Up Bracket Ass'y.
98	713A11	Ball Bearing, 3/16" Dia.
	964B878	Motor & Plate Ass'y.
99	367B20	Motor
100	964A440	Fan & Grommet Ass'y.
101	964A407	Record Switch Actuator Arm Ass'y.
102	712A22	Idler Spring
103	964B173-2	Head Mtg. Bracket Ass'y. & Tape Guide Ass'y. (Stereo Models)
	964B173-1	Head Mtg. Bracket Ass'y. & Tape Guide Ass'y. (Monaural Models)
	964B168	Head Mtg. Bracket Ass'y.
104	964A394	Pressure Roller
105	619-14-8	"C" Ring, 1/4" Dia.
106	811A43	Fiber Washer
107	731A55	Tape Guide
108	734A32-1	Tape Guide Post
109	711A785	Erase Head Bracket
110	983B2	Erase Head
111	712A98	Compression Spring Head Mtg. (3 Required)
112	731B4	Bracket, Record-Play Head Mtg.
113	983B7	Record-Play Head, Model
114	734A36	Right Tape Guide Post

* Idler Wheel, Rewind; WALSCO Part #1483

AMP PARTS LIST AND DESCRIPTIONS

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in 12 Colors
Power Cord	8524 (Stranded) Available in 12 Colors
	17106 (Plastic) or 17126 (Rubber) - 6 Ft.
	17109 (Plastic) or 17129 (Rubber) - 9 Ft.
Power Cord (Interlock Type)	Use BELDEN No. 8874 (Rubber) or 8895 (Plastic)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401 or 8421
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor-Unshielded)
	8429 (Two Conductor-Shielded)
	8419 (Three Conductor-Shielded)

TUBES

* AMPEREX * GENERAL ELECTRIC * RCA * RAYTHEON * SYLVANIA *					
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	AF Amplifier	12AX7A	V5	Bias Oscillator	6AQ5A
V2	AF Amp. -Cath. Follower	12AT7	V6	Stereo Preamp.	12AX7A
V3	Output	6AQ5A	V7	Rectifier	6X4
V4	Record Level Indicator	EM84/6FG8 (EM840)*			

* Alternate

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	PENTRON PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.
CLA	30	400	285-90654	AFH3-39	C0300	XC3-40	FP376.7		
B	30	400							
C	30	400							
C2	25	200	273-25624	PRS1575	BR30-250	QT1-12	TC58	TD-30-250	TVA-1510
C3	25	25	273-25694	PTT82	BBR25-25	MT1-11	TC26	MLV25-25	TVA-1205
C4	25	25	273-25694	PTT82	BBR25-25	MT1-11	TC26	MLV25-25	TVA-1205
C5	25	25	273-25694	PTT82	BBR25-25	MT1-11	TC26	MLV25-25	TVA-1205
C6	25	25	273-25694	PTT82	BBR25-25	MT1-11	TC26	MLV25-25	TVA-1205

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA						
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCOPART No.	MALLORY PART No.	SPRAGUE PART No.	
C7	50 N750 10%		N750-D1 47	TCN-50	CIQ95U	CCTN-470	CN7-447	10TCU-Q47	
C8	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20	
C9	50 N750 10%		N750-D1 47	TCN-50	CIQ95U	CCTN-470	CN7-447	10TCU-Q47	
C10	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10	
C11	500		DI-500	DD-501	BYA10T5	CCD-501	B-350	10TS-T50	
C12	.003 600V		P688N-003	D6-302	CUB6D3	6DP-1-302	GEM-623	6TM-D30	
C13	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50	
C14	500		DI-500	DD-501	BYA10T5	CCD-501	B-350	10TS-T50	
C15	.25 200V		P288N-25		CUB2P25	2DP-4-254	GEM-2025	2TM-P25	
C16	680 10%		DI-680	DD-681	5R5T68	CCD-681	GP368	10TS-T68	
C17	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20	
C18	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10	
C19	.003 600V		P688N-003	D6-302	CUB6D3	6DP-1-302	GEM-623	6TM-D30	
C20	.003 600V		P688N-003	D6-302	CUB6D3	6DP-1-302	GEM-623	6TM-D30	
C21	.003 600V		P688N-003	D6-302	CUB6D3	6DP-1-302	GEM-623	6TM-D30	
C22	50 N750 10%		N750-D1 47	TCN-50	CIQ95U	CCTN-470	CN7-447	10TCU-Q47	
C23	.003		DI-3000	DD-302	BYA10D3	CCD-302	B-230	10TS-D30	
C24	680 10%		DI-680	DD-681	5R5T68	CCD-681	GP368	10TS-T68	

CONTROLS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	USE	RESISTANCE	REPLACEMENT DATA				
			PENTRON PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R1	Volume	500K	124A50413-17 Note 1	B-60, (AB-60, AK-7)	A47-500K-Z/FS-3	Q13-133, (BUI, CF25, SS1, DC1)†	U48, (UA55A, SF1000)
R2	Tone & Switch	500K	126A50413-10 Note 2	B-60-S, (AB-60, KR-1, AK-7)	A47-500K-Z/FS-3, SWE-12	Q13-133, 76-1, (BUI, CF25, SS1, GC)†	U48, US-26 (UA55A, US-41, SF1000)

† "SNAPTROL"

Note 1. Part #124-50413-7 used in some versions.

Note 2. Part #126-50413-4 used in some versions.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN PART No.	REMARKS			IRC PART No.	WORKMAN PART No.	REMARKS
R3	1meg				R21	1meg			
R4	220K				R22	100K			
R5	2700Ω				R23	270K			
R6	150K				R24	470K			
R7	3300Ω				R25	2700Ω			
R8	1meg				R26	47K			
R9	100K				R27	10K			
R10	2700Ω				R28	1meg			
R11	1meg				R29	220K			
R12	150K				R30	2700Ω			
R13	82K				R31	1meg			
R14	330K				R32	100K			
R15	470Ω				R33	180K			
R16	39K				R34	120K			
R17	220K				R35	1500Ω			
R18	470K				R36	2200Ω 1W			
R19	390Ω				R37	15K			
R20	2200Ω				R38	10K			

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		PENTRON PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman PART No.	
L1	Bias Osc.	311A21					

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	PENTRON PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	117VAC @ .92A	550VAC @ .050A	6.3VAC @ 2.4A	352A36	P-3154①				① Tape 5V Winding

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	PENTRON PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	8000Ω	8-8Ω	342A22	A-2901	A-3849	24S06	S-51X	

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	PENTRON PART No.	QUAM PART No.	
SP1	4" x 6"	PM	3-4Ω	345B28	46A1	
SP2	4"	PM	3-4Ω	345B29	4A07	

MISCELLANEOUS

ITEM No.	PART NAME	PENTRON PART No.	NOTES
M1	Record-Play Head	983B7	Model AR-62S. (Part #983B3 used in Model AR-62.)
M2	Erase Head	983B2	
M3	Switch	539A11-2	Record-Play, Rotary Wafer Type Muting, With Hardware Monitor, SPST Slide Type Equalization Cutoff - Micro Type
M4	Switch	532A6	
M5	Switch	532A40	
M6	Switch	53422	
M7	Switch	523A45	
	Microphone	445-B31	

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	814A73	Volume & Tone
Knob	814A73-3	Recorder Control
Case	867-D-962	Recorder
Cover	824C925	Top (Front)
Cover	765B885-2	Head